



METROPOLITAN
TRANSPORTATION
COMMISSION

Joseph P. Bort MetroCenter
101 Eighth Street
Oakland, CA 94607-4700
TEL 510.817.5700
TTY/TDD 510.817.5769
FAX 510.817.5848
E-MAIL info@mtc.ca.gov
WEB www.mtc.ca.gov

April 30, 2007

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Bay Area Toll Authority

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Mr. Thomas M. McNamara
Office of the Assistant Secretary for Transportation Policy
U.S. Department of Transportation, Room 10305 (P-20)
400 7th Street, SW
Washington, DC 20590

Dear Mr. McNamara:

The Metropolitan Transportation Commission and our partner agencies are pleased to submit *San Francisco Bay Area Accelerate* for consideration in the U.S. DOT's Urban Partnership Program.

Our mission is to keep the Bay Area moving. We are prepared to partner with U.S. DOT to deliver congestion reduction by 2009 through a bold program combining the "four Ts:" tolling, advanced technology, transit and transportation demand management.

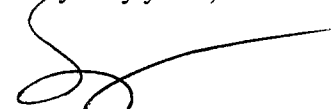
The Bay Area proposal is distinguished by its depth and breadth. At the core of our proposal, **the San Francisco Value Pricing** program features value pricing for all vehicles using the City's northern gateway Doyle Drive, and drills down with a full complement of supporting transit enhancements, parking and arterial management, and demand management.

Additional elements demonstrate how the four Ts work together in the broader context of an entire metropolitan region. These include:

- Early building blocks of the **Regional High-Occupancy/Toll (HOT) Lane Network**, including a Silicon Valley mini-network that uses existing direct HOV connectors;
- **Regional Parking Pricing and Management** to address more localized congestion that chokes city streets and slows transit;
- **Multi-Modal Corridor Management** employing advanced technology to manage recurrent and non-recurrent congestion in heavily congested corridors that are not candidates for near-term pricing; and
- A **Regional Technology** overlay, that will enhance the region's award-winning 511 traveler information system to reflect the new, priced environment, and that expands the existing California VII testbed to test advanced technologies for variable pricing.

The U.S. DOT Urban Partnership initiative offers a tremendous opportunity to demonstrate the power of congesting pricing in conjunction with supporting programs. We hope to be your strong partner by demonstrating this in the San Francisco Bay Area.

Very truly yours,



Steve Heminger
Executive Director

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SAN FRANCISCO BAY AREA ACCELERATE:

HARNESSING TOLLING,
TECHNOLOGY, TRANSIT AND TDM
TO SPEED UP TRAFFIC

URBAN PARTNERSHIP PROGRAM
APRIL 2007



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ALAMEDA COUNTY
CONGESTION MANAGEMENT AGENCY



C/CAG



SFMTA

San Francisco
Municipal Transportation Agency



Introduction

San Francisco Bay Area *Accelerate* is a comprehensive plan that combines roadway tolling, advanced technology, expanded transit service and transportation demand management to improve mobility in some of the region's most vital — and most congested — corridors. A robust federal investment through the Urban Partnership Program will supplement hundreds of millions of state and local dollars already secured by Bay Area transportation agencies, ensuring timely completion of these critical projects and allowing other U.S. cities to capitalize on the breakthroughs pioneered here.

The Bay Area's Urban Partnership proposal leverages not only the region's existing financial commitments but its position at the forefront of technological innovation and its readiness to move forward immediately with a slate of projects notable for its depth as well as its breadth. At the core of the proposal is a bold plan to implement value pricing on Doyle Drive, the northern gateway to San Francisco, with a full complement of transit and transportation demand management strategies. In addition, San Francisco Bay Area *Accelerate* builds on the nine-county region's extensive existing HOV system, existing electronic toll collection and transit-fare payment systems, its market-leading 511 traveler information system, and the vehicle infrastructure integration (VII) testbed being established in the Silicon Valley. Taken together, these elements comprise a cost-effective plan for reducing both freeway and urban street congestion, enhancing freight movement, easing the search for parking, and even boosting transit ridership. Each of these initiatives offers promise for improving mobility in urban areas coast to coast.

The Congestion Challenge: Transportation System, Leadership, Advantage

With over 7 million residents and more than 3 million jobs, the nine-county San Francisco Bay Area is the fifth largest metropolitan area in the nation and a vital engine for U.S. economic growth. From the financial center and tourist mecca of San Francisco to the cutting-edge technology of Silicon Valley, the bustling container terminals at the Port of Oakland, and the studios of entertainment innovators such as Pixar and Lucasfilm, the Bay Area not only adds billions of dollars to our GDP but delivers the best of America to the rest of the world.

Congestion on the Transportation System

Making all this possible is a transportation network that includes more than 1,400 miles of highways, over 340 miles of existing carpool lanes (with funding in place for another 150 miles), eight toll bridges that handle nearly 180,000 electronic toll collection transactions each day, and a multi-modal transit system that runs 190 million vehicle miles of service and carries more than 470 million trips each year. Vital national and international gateways include the Port of Oakland, which is the fourth largest container port in the country, and the area's three international airports, which together process over 58 million passengers per year.

Yet despite the size of this network, the Bay Area transportation system is sagging under the weight of growing population, soaring freight traffic and a generation of underinvestment. Bay Area drivers literally are spending days each year stuck in traffic. The Texas Transportation Institute's 2005 Urban Mobility Report ranked the San Francisco-Oakland area as the second most congested urban area in the U.S., trailing only Los Angeles. A typical peak period traveler in the San Francisco-Oakland area experienced 72 hours of delay in 2003 — the most recent year for which data are available — and the travel time index for San Francisco-Oakland in 2003 was 1.54, meaning a trip made during rush hour congestion took more than half again as long to complete as it would during increasingly rare free-flow conditions. The same report ranked the San Jose area 11th among large urban areas, with 53 hours of annual delay and a travel time index of 1.37.

This chronic congestion costs every Bay Area resident hundreds of dollars each year in extra fuel expenses, wasted time and lost productivity. The Texas Transportation Institute estimated the cost of congestion in the San Francisco-Oakland and San Jose areas at more than \$3.4 billion in 2003. And these

costs are only rising. Rebounding employment has fueled an 11 percent increase in peak period freeway congestion around the Bay Area since 2003.

Leadership

Polls show that year in and year out, in good economic times and bad, Bay Area residents rank transportation at or near the top of their lists of concerns. They see a transportation system that is poorly maintained, seriously overcrowded at peak hours and woefully under funded. These conditions have been decades in the making and cannot be reversed overnight. But thanks to Bay Area voters and political leaders, conditions finally are changing for the better.

Bay Area voters consistently have demonstrated their willingness to dig into their own pockets to fund transportation system improvements. This was reaffirmed last November, when voters across California overwhelmingly approved Proposition 1B, a nearly \$20 billion statewide transportation infrastructure bond. In the nine-county Bay Area, the measure passed by a whopping 64 percent to 36 percent margin. Seven of the nine Bay Area counties, including those participating in this proposal — San Francisco, Santa Clara and Alameda counties — now have dedicated transportation sales taxes. Indeed, Santa Clara County was the first county in the state to approve a transportation sales tax. Further, Bay Area voters have twice voted — in 1988 with Regional Measure 1 and again in 2004 with Regional Measure 2 — to increase bridge tolls to finance a range of mobility improvements in the transbay corridors.

More and more political leaders are recognizing the enormous scale of California's transportation needs and stepping up to support innovative approaches to reduce congestion, such as those U.S. DOT seeks in its Urban Partnership Agreements. Proposition 1B was crafted by the California Legislature and endorsed by Gov. Arnold Schwarzenegger as part of his Strategic Growth Plan, which also calls for authorizing increased use of tolls and the construction of high-occupancy/toll (HOT) lanes such as those proposed in the San Francisco Bay Area Accelerate. In San Francisco, Mayor Gavin Newsom is seeking enabling legislation to institute value pricing — with toll rates varying according to demand — to help finance the replacement of Doyle Drive, a crucial but outdated and seismically vulnerable approach to the Golden Gate Bridge, with a modern roadway built to contemporary seismic and traffic safety standards. The *Transportation 2030 Plan* adopted by MTC in 2005 details a comprehensive HOT lane network throughout the Bay Area, and Gov. Schwarzenegger has already signed into law a pair of bills authorizing demonstration HOT lane projects in Alameda and Santa Clara counties. Elected officials in these counties actively support the demonstration projects, which are scheduled to start construction as early as next year.

Advantage

The Bay Area has additional assets that position its Urban Partnership strategy for success. The region's residents and employers are world-renowned for being open-minded, innovative, and as concerned about the environment as they are about mobility. These qualities are reflected in the existing transportation infrastructure and programs that give the Bay Area a head start on the strategies U.S. DOT seeks to demonstrate.

- Travelers are familiar with the FasTrak[®] system and the Bay Area Toll Authority's Customer Service Center, which currently serve more than 600,000 account holders and provide electronic toll capabilities for the region's transbay toll bridges; this system can be readily applied to value pricing and HOT lanes.
- The region's award-winning 511 service last year tallied more than 5 million phone calls and over 16 million Web user sessions, providing up-to-the-minute information on traffic conditions and driving times for more than 95 percent of the Bay Area freeway network, plus information on transit routes, fares and schedules. The 511 system can readily be enhanced to provide current information on congestion pricing and efforts already underway to develop a real-time transit information application can be expedited.
- Bay Area employers like Google, Genentech and Cisco consistently rank among the top in Fortune's 100 best companies for which to work. This is due in part to their extensive and creative

programs to ease their workers' commutes. The 511 Regional Ridershare Program works closely with employers to promote alternative commute options.

- The region's freeway system already includes an extensive network of HOV lanes, including several direct HOV connectors, providing the basic roadway infrastructure needed for HOT lanes.
- Finally, the Bay Area's robust and well-used network of rail and express buses — along with frequent urban transit services — provides a strong foundation for enhancing commute alternatives in conjunction with congestion pricing.

Congestion Reduction Strategy is Both Deep and Broad

The Bay Area's congestion reduction strategy is an initiative of unprecedented scope, which proposes a comprehensive plan that not only targets some of the region's most congested corridors but also identifies specific highway segments where the effectiveness of congestion pricing can be demonstrated most quickly ([see map](#)). The strategy leverages more than one billion dollars in investment — including local matching funds and investments in existing tolling and technology systems — and harnesses the region's technological prowess to tie these elements together with supporting transit and transportation demand management initiatives. Each element of the strategy can serve as a national model.

Depth: Drilling Down in San Francisco

San Francisco Bay Area Accelerate exhibits **depth** in its treatment of the San Francisco Value Pricing program. At the core of the Bay Area strategy, San Francisco's value pricing initiative centers on implementing a congestion toll on Doyle Drive and includes a full complement of near-term transit enhancements, parking pricing and management, and arterial management in the travel corridors served by Doyle Drive, as follows:

- Congestion pricing for all vehicles on Doyle Drive, the south access to the Golden Gate Bridge and an essential gateway to San Francisco and its 500,000 jobs;
- An extensive transit priority program to improve service in the corridor;
- Expansion of the City's arterial traffic management system in the corridor and parallel routes;
- A parking guidance, pricing and payment program for the Civic Center and Downtown; and
- Expansion of telecommuting and transportation demand management programs.

The San Francisco initiative may be expanded to include a pay-as-you-go automobile insurance study and pilot project to be undertaken in cooperation with the Automobile Association of Northern California. A proposal for this project will follow as an addendum to this proposal.

Like San Francisco itself, the geographic area covered by the value pricing program is relatively small. But the influence and potential benefits of this bold proposal are enormous. A successful Doyle Drive Value Pricing Program effort would demonstrate feasibility and benefit of pricing to the public as San Francisco conducts its citywide Mobility, Access and Pricing Study, which is investigating wider congestion pricing options.

Breadth: Reaching Across the Bay Area

The Bay Area's Urban Partnership proposal reflects **breadth** in initiatives proposed for the region beyond San Francisco's boundaries. It focuses on two clear themes: a regional high-occupancy/toll lane (HOT lane) network, and downtown parking pricing and management. The program proposed for San Francisco proper, well suited for a highly urban area with distinct points of entry, does not lend itself to all settings. To manage freeway congestion in the remainder of the region, the Bay Area's long-range *Transportation 2030 Plan* calls for converting nearly 500 lane miles of existing and funded HOV lanes to HOT lanes, and using the toll revenue to complete and connect the HOV/HOT system. The first pieces of this regional network will open for use in 2009 and 2010 in Alameda and Santa Clara counties. Included in the Bay

Area's Urban Partnership proposal are Alameda County projects that will advance the state-of-the-art in pricing algorithms and enforcement technologies, and a request for federal assistance for Santa Clara County to roll out possibly the first truly connected HOT lanes in the country by making use of existing direct HOV connectors.

State-of-the-art parking pricing and management programs, such as those being pursued by San Francisco and Berkeley, use advanced technologies to address more localized congestion that chokes city streets and slows transit services. Prices of on-street and off-street parking will be set to balance demand and reduce congestion caused by drivers circling for under-priced on-street parking. MTC will work with the cities to adapt existing electronic payment media, such as the FasTrak® electronic toll collection system and the TransLink® transit fare smart card, for parking applications.

In some of the region's most congested corridors, even HOT lanes are not likely to gain traction within the Urban Partnership Program's time frame. So the Bay Area proposal encompasses innovative, multi-modal operations and congestion management programs in three travel corridors that eventually will be part of the regional HOT lane network but are not slated for near-term transition to a congestion pricing model. These include the I-880 Integrated Corridor Management (ICM) project, which already has been selected by U.S. DOT as a Federal Pioneer Site. To complement the I-880 ICM project, the Bay Area proposal also includes AC Transit's Telegraph Avenue/International Boulevard bus rapid transit project — the region's priority candidate for Small Starts funding at this time — as well as projects to reduce congestion through multi-modal operations in the I-80 corridor, which provides access to the San Francisco-Oakland Bay Bridge, and the U.S. 101/I-280 corridor connecting San Francisco and the Silicon Valley.

Cutting across all components of the Bay Area's congestion reduction strategy is a regional technology and evaluation overlay that involves a series of enhancements to the region's 511 system plus expansion of the existing vehicle infrastructure integration (VII) testbed. Near-term enhancements to the Bay Area's 511 system would deliver up-to-the-minute information about the priced roadways and managed parking system, as well as real-time transit data. As a supplemental project, MTC will develop an on-line multi-modal trip planner. By expanding the VII testbed, Bay Area transportation agencies would be able to test innovative technologies to advance the state of the art for roadway congestion pricing to full open-road tolling as well as HOT lanes.

Partnerships

The elements in this proposal will be delivered by a partnership composed of: Caltrans; the Metropolitan Transportation Commission and Bay Area Toll Authority; county congestion management agencies and sales tax authorities serving San Francisco, Alameda, Santa Clara, and San Mateo counties; seven major transit operators providing service in these counties; the cities of San Francisco and Berkeley; and numerous other contributors. (A full list of participating parties can be found on page 24.)

Program Benefits

Taken together, the Bay Area initiatives detailed in this proposal will significantly reduce congestion and deliver improved reliability to hundreds of thousands of travelers and businesses each day.

- Some 120,000 vehicles carrying over 200,000 persons traverse Doyle Drive daily and will be served by the comprehensive set of improvements proposed for San Francisco. The Doyle Drive congestion toll is expected to divert 2,000 vehicle trips, 10 percent of peak volume, to shoulder or off-peak periods and to transit, reducing congestion and increasing transit performance in the corridor. Toll revenue will help pay for safety and operational improvements to Doyle Drive, further reducing incident-related delays. Transit priority treatments will attract over 6,000 new transit riders to existing services in the Doyle Drive corridor, further reducing congestion and improving arterial operations. Since most trips in the corridor start or end in Downtown San Francisco, the congestion toll will provide a definitive indication of the effectiveness of gateway pricing, a surrogate application for future cordon pricing, into Downtown — potentially the first such demonstration in the western U.S.

- The Regional HOT Lanes Network Feasibility study suggests the regional network could reduce vehicle hours traveled by 10 percent and increase average freeway speeds by 15 percent; however, benefits in the most congested corridors, such as those included here, could be much greater, resulting in 35 to 40 percent decrease in delay. Specifically, the Silicon Valley and Tri-Valley/Sunol HOT lanes projects will carry volumes of more than 3,000 tolled vehicles across all HOT lane corridors during the morning peak hour alone in 2015. On a corridor-by-corridor basis, this represents some 8 to 20 percent of the average peak hour vehicle volumes – enough to make a significant dent in congestion. Another 7,000 to 8,000 carpoolers will use the lanes free of charge in the peak hour.
- The multi-modal operations projects that do not include pricing are expected to smooth traffic for more than 1 million vehicles a day in the highly congested I-880, I-80 and U.S. 101/I-280 corridors. These projects have potential to increase average freeway speeds by 15 percent and will help manage both recurrent and incident-related delay.

Near-Term and Supplemental Strategies

To address U.S. DOT's emphasis on congestion pricing and its interest in projects that can be implemented by 2009, the Bay Area's proposal is divided into two categories — "Near-Term" projects and "Supplemental" projects. (See Implementation Schedule and Funding Plan.) The Near-Term projects represent a financially constrained set of initiatives that embody both the depth and breadth of the Bay Area proposal. These projects typically support pricing initiatives directly and will be open for use by 2009. The Supplemental projects represent enhancements that leverage Near-Term investments for greater congestion reduction and may be of other interest to U.S. DOT as well. Each of these Supplemental projects will be underway by 2009, though several will not be open for use until 2010 or later.

Regional Priority-Setting Process for Transit Expansion

The Bay Area has a time-tested process that allows the region to speak with one voice, and assures that projects proposed to FTA for funding are consistent with regional plans and policies. The current Regional Transportation Expansion Policy (adopted by MTC in 2001 as Resolution No. 3434 and updated in 2006) establishes AC Transit's Telegraph/International Bus Rapid Transit project as the region's priority for Small Starts funding. Later in 2007, MTC and the Bay Area Partnership will take steps to consider additional priorities for Small Starts candidates.

Because this process is not yet complete, the AC Transit project is the only project for which the Bay Area is seeking Small Starts funding through the Urban Partnership Program. All other transit enhancements are proposed for Federal Transit Administration 5309 funds. These include Phase 1 bus rapid transit along the Van Ness Avenue and Geary Boulevard corridors in San Francisco, as well as Livermore-Amador Valley Transit Authority (LAVTA) routes that provide service in the I-580 HOT lane corridor. Pending the outcome of the regional priority-setting process, San Francisco seeks to eventually serve the Van Ness and Geary corridors with full bus rapid transit and LAVTA aims to eventually serve the I-580 corridor with full bus rapid transit on the scale of a Very Small Starts project.

San Francisco Bay Area Accelerate

San Francisco Value Pricing

- 1 Doyle Drive value pricing toll
 - 2 Van Ness Ave. and Geary Blvd. Bus Rapid Transit (BRT)
 - 3 Transit-Preferential streets
 - 4 Downtown San Francisco parking pricing
- Arterial management and Transit signal priority (SFGO) *(not mapped)*

Regional HOT Lane Network

- 5 Tri-Valley/Sunol HOT lanes; tolling and enforcement technologies (I-580 and I-680)
- 6 I-580 bus rapid transit
- Hacienda Business Park TDM *(not mapped)*
- 7 Silicon Valley managed lanes network (US 101, SR 85, I-880/SR 237 corridor HOT lanes and ramp metering)
- 8 US 101 commuter travel time information system and real-time transit information

- 9 VTA Rapid 522 Bus signal priority
- First- and Last-Mile TDM *(not mapped)*

Regional Parking Management

- 10 Berkeley ValuePark Partnership
- Regional electronic payment and dynamic pricing *(not mapped)*

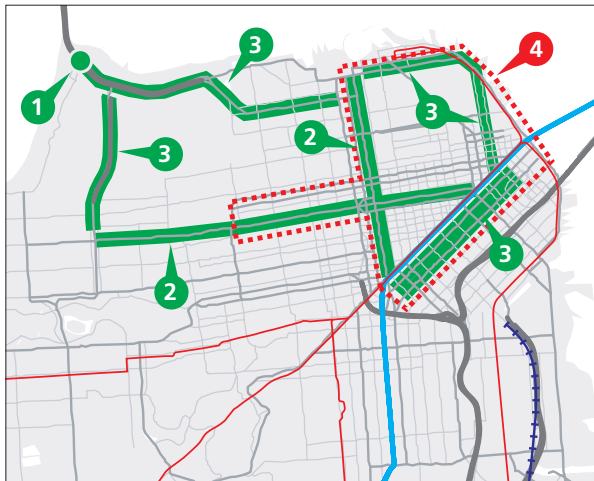
Multi-modal Operations for Congestion Management

- 11 I-880: Federal Integrated Corridor Management pioneer site
- 12 Telegraph Ave./International Blvd. bus rapid transit
- 13 I-80: Transportation management
- 14 US 101/I-280: Integrated transportation incident management

Regional Technology

- 511 enhancements *(not mapped)*
- Vehicle Infrastructure Integration (VII) test bed expansion *(not mapped)*

San Francisco Inset



Legend

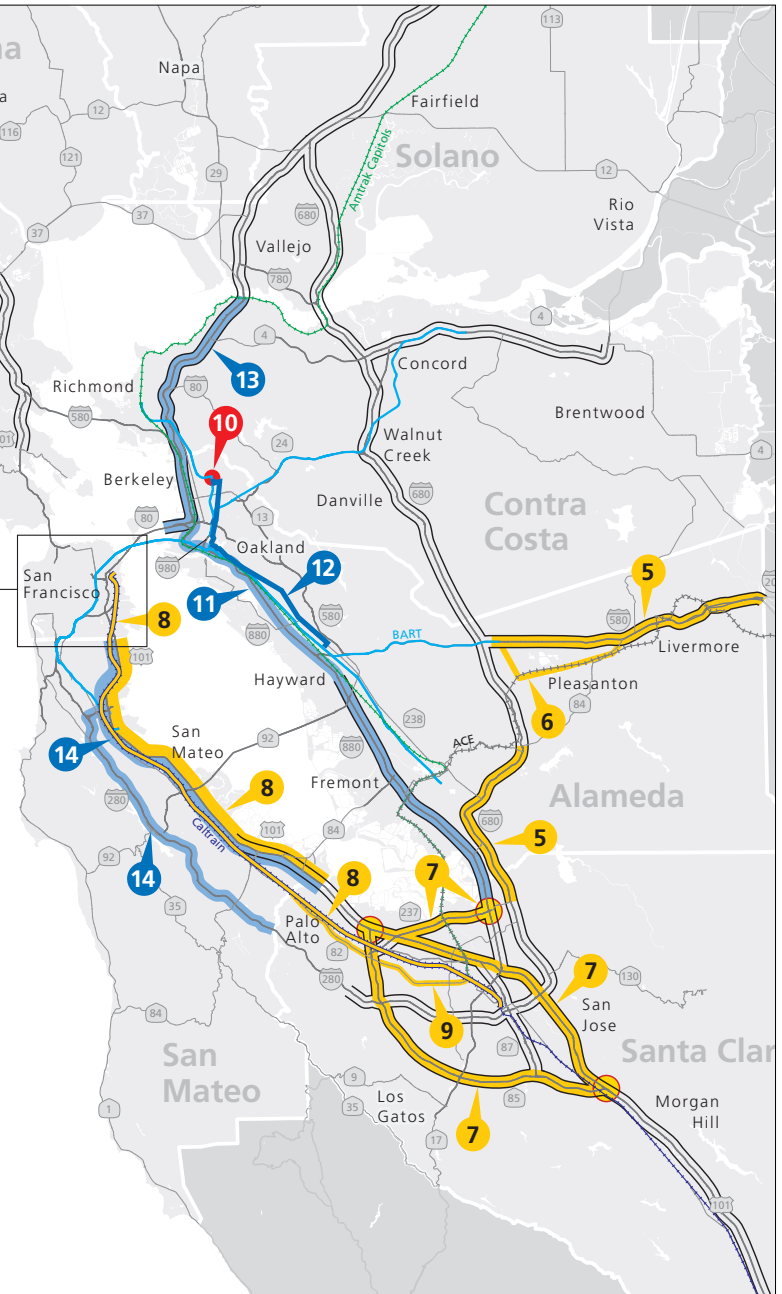
- Proposed High-Occupancy Toll (HOT) lane
- Freeway
- Highway
- Road
- BART line
- Caltrain line
- Amtrak Capitols line
- Altamont Commuter Express (ACE) line
- San Francisco Muni light-rail line
- Direct HOV/HOT connector

Miles
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Street base map © Thomas Bros. Maps.
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MTC Graphics/pb — 4/27/2007



For details, see
San Francisco inset.



Description of Urban Partnership Elements

For more detail, see associated grant applications.

Drilling Down in San Francisco: San Francisco Value Pricing

Despite 30 years of Transit First policies in San Francisco, the automobile still accounts for more than 60 percent of all trips in the City. And, as in many other large U.S. urbanized areas, traffic congestion is getting worse in San Francisco and the surrounding area, threatening the region's mobility, economic vitality and overall quality of life.

The Congestion Problem

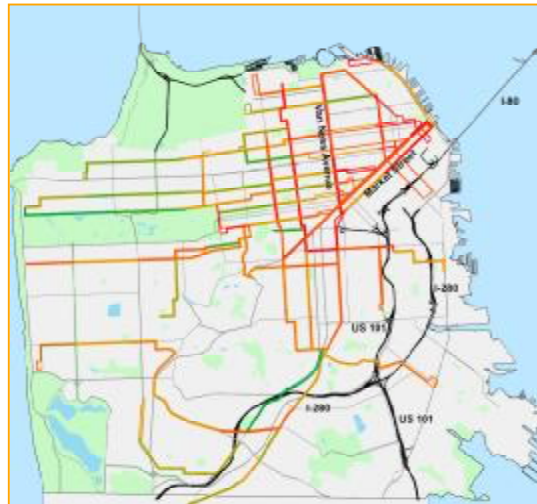
Average automobile speeds documented during the San Francisco Transportation Authority's last Congestion Management Program network monitoring cycle show a worsening of travel conditions over the past decade, particularly in the downtown area and on bridge approaches in the South of Market Area (SOMA). Street sections with the slowest speeds (i.e., average speeds of 5 mph or slower) are all in the SOMA and Downtown. For all San Francisco streets with speeds slower than 10 mph during the p.m. commute, 62 percent are in either Downtown or SOMA. Nineteen percent of these streets are in the Civic Center area and another 19 percent are scattered throughout the rest of the City including at its gateways ([see figures below](#)).

SF Congested Auto Links (LOS E or worse)



Based on subset of links in SF biennial speed surveys for 2006 Congestion Management Program Update (2006 data)

SF Congested Transit Links (Trolley lines only)



Based on select APC data for rail and trolley buses only (2006 data)

Roadway congestion reduces mobility for surface transit as well as cars and trucks. Indeed, bus riders experience much slower and less reliable travel times than auto users. Average trip speeds for transit are just one-third those of autos. Even net of dwell times, one study found that buses are 9 percent to 35 percent slower than cars. To make matters worse, transit is slowest in the same downtown areas (Van Ness Ave. and east; Market St. and north; SOMA district - including freeway ramps) that generally carry the heaviest ridership transit routes.

Muni — San Francisco's transit operator — has struggled unsuccessfully to raise its reliability indicator from a low 70 percent rate to its goal of 85 percent on-time performance. These are critical problems that must be solved quickly. Already, San Francisco's enviable transit mode shares are in decline as a consequence of slow speeds and unreliable journey times.

Yet, as San Francisco adds households and jobs, vehicle congestion is projected to grow even worse. By 2030, the City will add up to 70,000 more households and over 100,000 new jobs, the majority of which

will be located in the City's eastern neighborhoods (Downtown, South of Market, Mission Bay, Bayview/Hunters Point and the Mission District). Average trip times are projected to increase significantly, particularly during the peak period on major arterials. Most troubling, the transit mode share is projected to decline even further in the years ahead. If left unchecked, these trends portend serious economic, social and environmental consequences for San Francisco and the entire Bay Area.

San Francisco's Congestion Management Goals and Initiatives

San Francisco's political and business leaders understand the need to take bold steps to manage private car use, and to immediately protect and improve transit, carpooling, goods movement, walking and bicycling service levels.¹ Several initiatives now underway demonstrate the City's commitment to pursuing sustainable and integrated transportation policies:

- The Authority's 2004 Countywide Transportation Plan calls for the consideration of pricing as an addition to the City's congestion management toolkit. In January 2006, the FHWA awarded the Authority a \$1 million grant through the U.S. DOT's Value Pricing Program to conduct a congestion pricing feasibility study (now known as the Mobility, Access and Pricing Study). This evaluation is scheduled for completion in early 2008.
- Mayor Gavin Newsom in 2005 joined with mayors from around the world to sign the Urban Environmental Accords at the World Environment Day gathering in San Francisco. Signatories' commitments include developing and implementing a policy that expands affordable public transportation coverage to within half-a-kilometer of all city residents in 10 years, and implementing a policy to reduce the percentage of commute trips by single occupancy vehicles by 10 percent in seven years. San Francisco has set greenhouse gas reduction goals through the City's Climate Action Plan (20 percent below 1990 levels by 2012). As part of this effort, the City aims to improve air quality and mitigate traffic congestion by reducing CO₂ emissions by 963,000 tons per year.
- In 2006, the Authority initiated its On-Street Parking Management Study, which is investigating the use of parking pricing and other innovative strategies to manage demand for on-street neighborhood parking. The aim is to boost parking availability and reduce vehicle congestion caused by drivers circling around as they search for a free or low-cost meter spot. Professor Donald Shoup estimated in a 1997 study that the average search time for a parking space in San Francisco's Civic Center area was 6.5 minutes. By closing the pricing gap between on-street metered spaces and off-street market-rate garage spaces, the aim is to get drivers to use transit, use paid parking garages, or pay a higher rate to park on street, and in turn, use those revenues to fund transportation improvements.
- In March of 2007, state and local leaders, including Gov. Schwarzenegger, Mayor Newsom, state Senator Carol Migden and Transportation Authority Chairman Jake McGoldrick, gathered to urge the California Transportation Commission to provide funding for the Doyle Drive Replacement Project. The project's funding plan and recent toll study anticipate user charges to complete funding for construction of the new facility as well as manage demand.²
- In 2005, the Mayor issued his Telecommuting policy, which directs all city departments to make telecommuting available to their employees to the fullest extent possible and operationally feasible, consistent with a set of Telecommuting Program Policy and Guidelines. In doing so, the Mayor recognized that there are numerous benefits of telecommuting for the City, employees, and the community including decreased work trip vehicle miles, energy consumption, air pollution, and traffic and parking congestion.

¹ See: "Keep open mind on 'congestion pricing'" Opinion piece by Supervisor Jake McGoldrick, Examiner, May 15, 2006; San Francisco Business Times Editorial "Our View: SF gets another reason to rev up congestion pricing", February 9, 2007. See www.sfcta.org/UPA for links to these documents.

² See: Letter from San Francisco Mayor Gavin Newsom to the California Transportation Commission, indicating that the City is pursuing pricing authority legislation, dated March 22, 2007. See www.sfcta.org/UPA for a link to this letter.

San Francisco's Doyle Drive Value Pricing Program

Doyle Drive is part of U.S. 101 and serves as the northern gateway and 1.5-mile access road connecting the Golden Gate Bridge and northwest San Francisco to the city's Downtown and Civic Center areas. It is the only direct roadway link from San Francisco to Marin County and all points north.

San Francisco's element in the Bay Area's Urban Partnership proposal is the Doyle Drive Value Pricing Program. This comprehensive, multi-modal package of projects demonstrates U.S. DOT's four Ts of congestion management: Tolling, Transit, Technology and Telecommuting, as applied to a single critically important corridor. Components of the Doyle Drive Value Pricing Program include (see inset on map of Urban Partnership proposal projects):

- I. Demonstration of congestion pricing on the existing Doyle Drive facility to demonstrate the concept of variable pricing, with toll rates based on actual traffic conditions on Doyle Drive;
- II. An extensive transit priority program to improve Muni and Golden Gate Transit services in the corridor and encourage mode shift from autos to transit;
- III. Expansion of SFgo, San Francisco's real-time traffic management program in the corridor and on parallel arterials to ensure system wide support for the pricing and transit measures;
- IV. A "Smart" parking guidance, pricing and payment system, to better managing the City's on- and off-street parking supply in the Downtown and Civic Center area job centers; and
- V. An innovative transportation demand management component that promotes telecommuting, enhanced real-time traveler information systems and a new Integrated Mobility Account that would allow users to manage a single account balance for all priced services (bridge toll, road charge, Muni transit and parking services) in San Francisco.

Congestion pricing revenues from the Doyle Drive program will be reinvested in a package of mobility improvements that raise the level of service for alternatives to the private auto. This integrated approach has been used successfully by London, Stockholm, Singapore and other cities to redefine the set of transportation choices for urban travelers, in a way that improves a region's quality of life while supporting economic activity and maintaining a vibrant economy. Further, a successful Doyle Drive program would demonstrate feasibility and benefit of pricing to the public as San Francisco conducts its citywide Mobility, Access and Pricing Study, which is investigating wider congestion pricing options.

Component I: Doyle Drive Congestion Toll & Facility Replacement

San Francisco proposes to toll Doyle Drive as a way to manage the facility's chronic and recurrent congestion and pay for needed safety transit service improvements. Doyle Drive carries 120,000 vehicle trips daily and experiences chronic recurrent and frequent incident-based congestion due to its high automobile demand and outdated design. Some 58,000 vehicles enter southbound Doyle Drive daily (10,500 vehicles in the a.m. peak) with two-thirds of trips destined for Downtown San Francisco and the Civic Center area. Transit services operating on Doyle Drive use four key corridors within San Francisco — North Point, Van Ness, SOMA and Park Presidio/Geary — to access the Downtown/Civic Center area.

Congestion on Doyle Drive occurs seven days a week, causing delays to motorists and transit riders alike. During the a.m. weekday peak period, average inbound (southbound) speeds on Doyle Drive average 24 mph, deteriorating quickly to 10 to 15 mph on the eastern leg approaching the local street system³.

Incident related congestion is also a major problem on Doyle Drive. Due to its high traffic volumes, narrow lanes and absence of shoulders and dividing median, Doyle's collision rate is over two times higher than normal for this type of facility; the severity of injuries is also greater. The Golden Gate Bridge District's Freeway Service Patrol typically responds to 5 to 10 calls a day to address road blockages such as disabled vehicles, accidents and debris. Each of these blockages leads to significant delays. Traffic

³ See www.sfcta.org/UPA for link to this video, which shows current driving conditions along Doyle Drive in the a.m. peak in March 2007. Note the multilane, two-way traffic separated only by thin bollards. The stop-and-go conditions on the facility are a daily occurrence.

simulations indicate that in the morning peak direction a stalled vehicle on southbound Doyle Drive will cause delays for over half an hour, extending all the way back through the toll plaza on to the Golden Gate Bridge. Serious incidents can take up to four hours to clear.

Replacement of Doyle Drive provides an opportunity to add safety features such as medians to reduce the incidence and severity of head-on collisions, and related congestion impacts. Tolling Doyle Drive will help to finance the replacement facility while also managing congestion and providing much needed operating funds for transit enhancement. The Doyle Drive Congestion Toll and Replacement component is designed to address these problems and includes the following sub-projects:

a. Doyle Drive ERP Toll System/Customer Support – San Francisco proposes to toll the existing Doyle Drive facility as a means to reduce congestion and generate revenues for needed capital and transit service improvements. Prices would be set based on a policy-based performance threshold, such as average speed no less than “x”. Preliminary analysis indicates that variable pricing on Doyle Drive may shift up to 2,000 trips to transit and shoulder/off-peak periods at a modest toll. This represents about a 10 percent reduction of peak period traffic and, combined with safety and operational improvements described above, could translate into commensurate delay reductions.

The requested funds will be used to install roadside infrastructure including high-speed cameras and a gantry just south of the Golden Gate Bridge toll plaza and integrate toll collection with the Bay Area Toll Authority's back end operations. The requested operating funds will pay for initial startup of a San Francisco customer service center that will support variable pricing of San Francisco parking garages and meters and Doyle Drive. After the first three years, customer service center operations would be funded from new sources, including congestion pricing revenues from Doyle Drive.

b. Doyle Drive Replacement Project – The purpose of the project is to replace Doyle Drive to improve the seismic, structural, and traffic safety of the roadway within the setting and context of the Presidio of San Francisco and its purpose as a National Park. The new facility will incorporate safety and variable pricing features to reduce and manage delays. The requested funds will be used to complete design work and right-of-way acquisition leading to immediate construction of the Doyle Drive Replacement Project. The improved safety features will enable smooth, safe operations for an average 120,000 vehicle trips (and 200,000 person trips) each weekday.

The San Francisco Transportation Authority is the lead agency for both of these projects, and is pursuing tolling authority in this session of the California Legislature. If this authority is approved, the tolling project could begin immediately. The Authority expects to begin construction of the new facility in 2009/10 with opening projected in 2012. The tolling proposal also makes Doyle Drive a prime candidate for a public-private partnership, and for the application of design-build or similar alternative project delivery options. There is a high level of private sector interest in the project.

Component II: Transit Priority Facilities and Measures.

Golden Gate Transit and Muni operate Doyle Drive corridor transit services to San Francisco job centers in the Downtown and the Civic Center area using four main routes: Van Ness/Lombard, Geary/Park Presidio, Northpoint and SOMA. This component proposes transit priority facilities and measures on each of these routes, including initial phases of San Francisco's Bus Rapid Transit (BRT) projects on Van Ness Avenue and Geary Boulevard, and Transit-Preferential Streets (TPS) projects on Northpoint, SOMA and Park Presidio corridors. This program of projects enables faster, more reliable local and regional bus services that will benefit both existing riders, as cited below, and up to 6,000 additional riders projected to be attracted to the improved services⁴.

a. Van Ness BRT – Early Action Projects. The most heavily used corridor from Doyle Drive into San Francisco's Downtown and Civic Center is the Van Ness Corridor, with 21,000 transit riders per day. This corridor accommodates the principal north-south transit spine of the Muni network in the northern sector

⁴ Estimate of 6,000 additional riders is based on an assumed 0.6 elasticity of demand with respect to travel time (10% savings) and other quality of service attributes like reliability and comfort.

of San Francisco, as well as three Golden Gate Transit routes between the North Bay and San Francisco. As such, Van Ness is a focus for Bus Rapid Transit treatment between Lombard and Mission. The proposed first phase of the Van Ness BRT project would include purchase of automatic vehicle location (AVL) real time infrastructure for the transit stops; GPS transit signal priority (see Project III.b), benefiting both operators; and TransLink® card readers at station platforms, along with handheld devices to enforce Proof-of-Payment (see Project II.d). New low floor BRT vehicles would also speed all door level boarding and alighting (see Project II.c below). Bus mounted cameras would be used to enforce double-parking restrictions⁵. The proposed project would reduce delays by 10 to 15 percent, improve reliability and comfort for the existing 21,000 riders in the corridor, including Doyle riders. Eventually, once the full BRT project is implemented, the project would result in an estimated 23 percent increase in ridership, with former drivers accounting for 60 percent of the additional riders. The Van Ness BRT Early Action project could be implemented immediately and be completed by 2009.

b. Geary BRT – Early Action Projects. Similarly, Muni and Golden Gate Transit together carry over 50,000 daily riders along Geary Blvd and into Downtown San Francisco. Though most of these passengers use Muni services, Golden Gate Transit also relies on the Geary corridor to provide access to employment centers not located within Downtown proper, including medical facilities clustered around Divisadero and Geary. Early transit priority treatments delivered to Geary are the same as those described above for the Van Ness BRT project. The requested funds would implement the first phase of BRT on Geary including the transfer hub at Park Presidio. The proposed project would reduce delays by 10 to 15 percent, improve reliability and comfort for the existing 50,000 riders in the corridor, including Doyle riders. Eventually, once the full BRT project is implemented, the project would result in an estimated 23 percent increase in ridership, with former drivers accounting for 25 percent of the additional riders. The Geary BRT Early Action project could be implemented immediately and be completed by 2009.

Pending regional discussions about Small Starts priorities in the region, and further progress on environmental documents, the Authority and Municipal Transportation Agency (MTA), of which Muni is a department anticipate submitting a future Small Starts application to implement a full-featured BRT projects on Van Ness Avenue and Geary Boulevard including: fiber optic signal priority; dedicated transit lanes; and pedestrian access improvements. BRT on Van Ness will provide a fast, reliable transit choice for the over 70,000 Muni and Golden Gate Transit passengers that already use these two corridors daily.

c. BRT Vehicles. New BRT vehicles are required to provide the optimal service improvements in the BRT facility on Geary and Van Ness Avenue. The requested funds would purchase 100 new BRT vehicles with low floors, multiple doors on both sides of the vehicles, and larger capacity. This vehicle expansion would require the retrofit of an operations and maintenance facility. The Van Ness Feasibility Study identified potential vehicle types and estimated the cost of new vehicles. For both the Geary and Van Ness routes, a total of 83 buses are required – plus 20 percent for maintenance spares — resulting in a need for 100 vehicles. This project would begin immediately with an initial fleet of vehicles in place for the start of Van Ness BRT operations in 2010.

d. Transit Preferential Streets (TPS) Corridors. The North Point and SOMA are two other key corridors carrying Doyle Drive traffic and transit. The North Point corridor is an especially critical link between Doyle Drive and Downtown for Golden Gate Transit, carrying the majority of the 5,000 total North Bay transit riders. Muni operates its express commuter service between the Presidio job center and Downtown (Route 82x), as well as other routes, including Van Ness routes and the 10-Townsend into SOMA, along North Point. A complete set of transit priority treatments would be installed along North Point to benefit both Muni and Golden Gate Transit services. This TPS network would include expanded station platforms with bus bulbs, preventing the need for buses to merge in and out of traffic at stops; infrared transit signal priority for both operators; AVL real time bus arrival information for both operators; and proof-of-payment infrastructure, including readers for TransLink® as described below. The proposed project implements TPS treatments along Lombard (see related Signal Priority Project III.b), North Point, and into Downtown San Francisco to benefit over 6,000 daily Golden Gate Transit and Muni riders, including Doyle corridor riders. The project would be implemented in two phases from 2008 to 2010

⁵ Pending legislation in this session of the California Legislature.

Transit priority treatments in SOMA complete the package of rapid, reliable, and comfortable transit services from the North Bay along Doyle Drive to Downtown/Civic Center. SOMA TPS on Mission and Folsom Streets would speed service and improve reliability for a combined 56,000 Muni and Golden Gate Transit riders daily. These routes would benefit from bus-mounted camera enforcement of the existing bus lane⁶. Additional improvements include all the TPS features described above. The proposed project implements TPS treatments on Mission and Folsom Streets between San Francisco's Downtown Transbay Terminal and 11th Street at the intersection with the Van Ness corridor. It will benefit 56,000 daily riders on Golden Gate Transit and Muni, including Doyle corridor riders, and drawing an estimated additional . The project would be implemented in two phases from 2008 to 2010.

Finally, funds are requested for core transit priority and passenger features at Golden Gate Transit's hub in the Civic Center. This location at the intersection of McAllister/Leavenworth/North 7th streets is adjacent to the Civic Center BART station and serves as a key regional transit hub for San Francisco. Yet, passenger amenities and transit priority treatments are not provided. Redesign of this location is needed to improve pedestrian access to both BART and Golden Gate Transit services; to facilitate way-finding and transfers between the regional transit services and Muni; and to improve passenger amenities. The project includes: real time arrival information; bus bulbs and adequate shelter and seating space; and way-finding and other passenger information to ease transfers between Golden Gate Transit and other local and regional services. The proposed project would benefit 14,000 daily Golden Gate Transit and Muni riders, including Doyle corridor riders. Construction would be coordinated with a planned rehabilitation of the Muni overhead lines for affected routes in 2008.

e. Facilities and Equipment. A critical technology component to the BRT and Transit Priority System is a proof-of-payment and fare prepayment system integrated with TransLink[®] regional transit-fare smart card system. Station platforms on BRT and TPS routes would be outfitted with readers to allow prepayment of fares using TransLink[®], resulting in seamless and convenient payment of transit fares while reducing delays to buses from boarding and alighting. This investment would be complemented by the purchase of hand held readers for fare inspection officials.

The transit priority infrastructure will be complemented by improvements to the MTA's Central Control to ensure active route management of these critical corridors. MTA is already rehabbing the Transit Control Center and upgrading the technology. This project would include a study and design of a solution to integrate the Muni Transit Control Center with the City's Traffic Control Center (SFgo, described below) for coordinated real-time management of both traffic and transit operations. These projects are ready to begin immediately.

Component III: SFgo Real-Time Traffic Management

SFgo is San Francisco's intelligent transportation management system, run by the Municipal Transportation Agency (MTA). Its mission is to provide multi-modal, real-time traveler information to the public and improve traffic flow citywide. SFgo will implement Intelligent Transportation Systems (ITS) tools to enhance traffic analysis and provide transit signal priority. These tools include advanced traffic signal controllers, traffic cameras, video detection, variable message signs, and a communications network, which will be connected to the City's Transportation Management Center (TMC).

The initial phase of the SFgo program will be completed by the end of 2007. This phase includes final build out of the main TMC and a satellite TMC. It also includes 100 intersections in the SOMA and Third Street corridor, 14 traffic cameras, five video detection systems and four variable message signs. Yet only 10 percent of the city's infrastructure will be connected to the TMC when this initial phase is completed. To expand the SFgo program, the City proposes the following initiatives for further development:

a. Arterial Traffic Management – SFgo infrastructure. This project includes traffic controller and signal system upgrades for the arterial routes connecting Doyle Drive and Downtown/Civic Center.

⁶ Pending legislation in this session of the California Legislature.

As part of the Municipal Transportation Agency (MTA), the Department of Parking and Traffic (DPT) maintains 1,148 traffic signals within San Francisco. At each signalized intersection, a traffic signal controller – essentially the "brains" of the system – operates the intersection. The project requests funds to improve traffic management to facilitate Doyle traffic movements by installing 500 new advanced traffic signal controllers (Type 2070) in the Downtown/SOMA/NOMA and Civic Center areas. The Geary and Van Ness corridors will be equipped through Project III.b. Transit Signal Priority.

More than two-thirds of the MTA's controllers are now entering the final stages of their projected useful life. The City's new standard is the 2070 traffic signal controller (2070). The 2070 has better programming capability and flexibility for system prioritization, pre-emption and coordination. These controllers, complemented with new software allow peer-to-peer communications, are necessary to implement a transit priority system citywide. Delays to replacing existing controllers with the 2070s are leading to severe degradation of the city's transportation network, increasing congestion and delays to all users of the roadways, especially in Downtown. Replacement of the controllers also better supports GPS-based transit signal priority operations as described below in Project III.b. In sum, the requested controllers help reduce congestion by enabling MTA to smooth traffic flows, manage incidents and provide transit and emergency vehicle priority on the city's most heavily used arterial routes.

The Lombard/North Point route is used mainly to access the Financial District from the north, along the Embarcadero. The corridor carries about a quarter of the morning commute traffic from Doyle Drive, or approximately 8,000 vehicles. Replacement of the traffic signal communications infrastructure recently was completed along Lombard Street, but has not yet been completed in the North Point corridor. The requested funds would enable installation of new controllers to better manage traffic operations.

19th Avenue/Park Presidio is one of the most congested routes in the Bay Area. It serves as a vital connection between Doyle Drive and the Golden Gate Bridge to the north and I-280 and San Mateo County to the south, and also carries regional Golden Gate Transit service. Approximately 42 percent of Doyle traffic – or 24,000 vehicles – travel along this corridor. The City and the California Department of Transportation (Caltrans) are jointly funding a \$17 million project that includes traffic signal upgrades and fiber optic cable installation in this corridor. Though design is currently in progress, a projected budget shortfall has forced a reduction in the scope of this project. The requested funds would allow a complete infrastructure replacement and enable signal coordination and transit priority in the corridor.

Signal coordination on each of these routes could improve flow and reduce congestion by up to 15 percent. The MTA will lead these projects and is prepared to implement them immediately.

b. Transit signal priority – SFgo infrastructure. Transit signal priority on key corridors will complement the proposed Doyle Drive tolling project by enhancing transit services and encouraging mode shifts. Transit signal priority projects advance the City's Transit First policy and lead to greater efficiency, on-time performance, reliability and ridership, while also reducing carbon emissions from cars, trains and buses. DPT studies show a 10 percent reduction in transit travel time can be achieved through signal priority measures.

The proposed project installs fiber optic communications networks, detection systems, new software and controllers to enable transit signal priority on Geary Boulevard, Lombard Street and Van Ness Avenue, highly congested surface streets directly connected to Doyle Drive. Geary and Van Ness are proposed BRT routes. Van Ness and Lombard together serve as U.S. 101, connecting local and regional commuters to employment centers in the northeast and northwest quadrants of the City. The intent of the transit priority system in these corridors is to enable buses operated by San Francisco Muni and Golden Gate Transit to be detected by GPS technology, triggering an extended green phase at downstream signals so the buses can pass through the intersection without delay. The project will also enable DPT to manage traffic on parallel routes once BRT is constructed on Van Ness and Geary. Replacement of the traffic signal communications infrastructure recently was completed along Lombard Street, so the project requests only GPS detection, software and controllers for this corridor.

The MTA will implement the project in two phases: Van Ness and Lombard in 2009 and Geary in 2011.

Component IV: "Smart" Parking Management

San Francisco's "Smart" Parking program demonstrates the concept of variable pricing as enabled and supported by innovative real-time technology and electronic payment systems. Together, the congestion related benefits of the "smart" parking projects include: 1) reduce vehicle miles traveled by directing travelers efficiently to the appropriate streets with garages that have vacant parking spaces, and by encouraging price sensitive motorists to use garage parking and increasing on-street parking availability for those willing to pay a premium 2) reduce delays to Muni vehicles that are caught in circulating traffic looking for parking or delayed by queues outside full garages, and 3) reduce demand for parking (and associated vehicle trips) in peak hours through pricing to utilize existing parking resources and street capacity to the fullest extent.

a. Parking Guidance System. The MTA is developing a parking guidance system for City-owned garages in the Downtown and the Civic Center area. This project will use a combination of variable message signs (VMS) and static guide signs to direct travelers, particularly non-San Franciscan residents, to garages with available spaces. Signage will be strategically located on major streets between the freeway off-ramps and garages. Real-time parking availability information also will be made available on the Internet, the regional 511 traveler information system, and Internet-connected devices. The project will integrate the software and hardware components of the garage vehicle counting system, VMS and the SFgo Transportation Management Center. The proposed project supports congestion reduction by providing travelers with real-time parking information before and as they make their trip, minimizing unnecessary circulation of vehicles on the city's already congested streets.

The Downtown area and Civic Center area VMS and software/hardware integration will be installed in two phases, by 2008 and 2010 respectively. The Civic Center phase will be done in conjunction with the Performing Arts Garage Renovation. Private local funds (\$1.5m) have been committed to this project.

b. Off-Street Parking Pricing and Payment System. The requested funds will be used to implement an off-street parking electronic variable pricing and payment system at garages owned and operated by the MTA, and to help finance three years of operations and maintenance, including an evaluation study. This system will help reduce congestion by speeding up parking payment collection, reducing queuing at parking facilities, and managing demand through variable pricing at 13 City-owned garages in the Downtown and Civic Center areas. City-owned garages currently do not vary pricing throughout the day, which limits the ability to manage availability as occupancy and demand increase or decrease. Payment methods will include the FasTrak[®] electronic toll collection transponder (integrated with bridge toll and Doyle Drive road use payment) and the TransLink[®] smart card (integrated with transit fare payment). (See Regional Parking Payment and Dynamic Pricing project under "Parking Pricing and Management for Local Congestion Relief," below.)

The Off-Street Parking Pricing and Payment project also includes a Web-based reservation system that will allow drivers to determine the availability of spaces and market these at a premium price. Each of these components is part of a comprehensive system to provide real-time parking information, to price spaces accordingly, and to offer users an electronic parking payment option.

The project demonstrates the use of pricing to manage vehicle use (parking). It also provides convenience to motorists by enabling electronic pricing, and promotes adoption of FasTrak[®] and TransLink[®] by making those services more useful. The project will be coordinated with Project VI, Integrated Mobility Account, which will enable users to manage a single account for all San Francisco FasTrak[®] and TransLink[®] services. The project will be led by the MTA in cooperation with the SFCTA, and Bay Area Toll Authority (BATA). The project will be constructed in two phases: the Downtown area and the Civic Center area by 2008 and 2010, respectively. The Civic Center phase will be done in conjunction with the Performing Arts Garage Renovation.

c. On-Street Parking Pricing and Payment System. The requested funds will be used to implement variable pricing at multi-space parking meters with sensors at individual spaces. These technologies would allow operators to institute congestion and parking management pricing strategies while providing users features such as smart card, credit card and pay-by-cell-phone capabilities. The street sensors will support real-time space management and electronic enforcement. The project includes areas surrounding

the three downtown transit corridors as well as the core Civic Center area. This study area is consistent with San Francisco's existing meter district policies, which sets meter rates at \$3 per hour in the Downtown and Civic Center areas, and \$1.50 per hour in the surrounding neighborhoods. The project will be coordinated with Project VI, Integrated Mobility Account, which will enable users to manage a single account for all San Francisco FasTrak® and TransLink® services and with the Regional Parking Payment and Dynamic Pricing project. (See "Parking Pricing and Management for Local Congestion Relief," below.)

A current pilot program in San Francisco's waterfront/Embarcadero area is investigating users' demand elasticities and appropriate pricing strategies. The SFCTA is also currently leading an on-street management and pricing study to investigate the potential of using variable pricing to increase on-street parking availability in San Francisco neighborhoods. Variable pricing for the proposed study area will be based on the data and analysis of the pilot program as well as the results from the San Francisco On-street Management and Pricing Study.

This program would enable congestion reduction (through pricing) by discouraging circling and encouraging use of transit or off-street garages. It also provides convenience to motorists by enabling electronic payment and promotes adoption of TransLink®. The project will be led by the MTA in cooperation with the SFCTA, and MTC. It will be constructed in two phases in 2008 and 2010.

Component V: Transportation Demand Management

Transportation demand management calls for strategies that provide "carrots" and "sticks" to influence traveler behavior and decision-making. The Doyle Drive Value Pricing Program incorporates both elements through a program of parking pricing (above Component IV), convenient new "value-added" services, and information technology and systems to affect decision-making.

a. Integrated Mobility Account. The requested funds will allow the Metropolitan Transportation Commission (MTC) and Bay Area Toll Authority (BATA) to integrate the infrastructure of the TransLink® regional transit-fare smart card system, and the FasTrak® electronic toll collection system. This would allow customers to manage a single account balance for all priced services (bridge tolls, road charges, Muni transit and parking services) within San Francisco. The project will be led by MTC and BATA in cooperation with the SFCTA and MTA. It will be implemented in 2009/10 in conjunction with BATA's procurement of the FasTrak® operating system.

b. Telecommuting. The requested funds will allow San Francisco to expand technical and promotional aspects of a telecommuting and TDM program that supports 30,000 City employees — over half of whom live outside San Francisco, with many traveling from distances greater than 20 miles. These TDM projects would further position the City and County of San Francisco to encourage similar programs for private firms. The proposal includes the following project components: Web-based interactive vanpool matching tool; Video conferencing system pilot; and Expansion of the 511 rideshare matching tool, and the 511 trip planning systems.

These components will allow employees to make more informed decisions when commuting and to be more efficient when working remotely. Benefits include a reduction in vehicle miles traveled, energy consumption and congestion. The San Francisco Department of the Environment already is working with large employers and institutions to expand telecommuting efforts. These programs also will reduce the number of work-related trips made by single-occupant vehicles. The project will be led by the Department of Environment in cooperation with the SFCTA and implemented between 2008 and 2010.

c. Doyle Drive Project Promotional Campaign. An effective public education campaign is essential to gaining public acceptance and support for the Doyle Drive Value Pricing Program. This project is a marketing and information campaign to promote and educate the public. Funds would help coordinate programs with the Transportation Management Association, which carries out TDM programs for more than 50 downtown buildings, with MTC's traveler information system, and with MIT's Media and Design Labs to develop prototype projects and visualizations. The SFCTA in cooperation with MTC and MTA will lead the project over the period 2008 to 2010.

Description of Urban Partnership Elements, continued

For more detail, see associated grant applications.

Reaching Across the Bay Area

1. *Regional HOT Lane Network*

The Bay Area's long-range regional transportation plan, *Transportation 2030*, calls for creating a comprehensive network of high-occupancy/toll (HOT) lanes by converting 500 miles of existing and funded HOV lanes to HOT lanes, and using toll revenue to fill gaps and extend the HOV/HOT network. Establishing this network is expected to deliver a wide range of benefits including:

- reduced congestion and more efficient use of freeway capacity;
- an expanded network to serve an enhanced system of express buses; and
- the ability to offer travelers reliable travel options, with premiums paid only by drivers who use the HOT lanes.

Preliminary findings by MTC's and Caltrans' ongoing Regional HOT Lane Network Feasibility Study indicate such a network would reduce vehicle hours traveled by as much as 10 percent and improve average speeds by up to 15 percent compared to traditional HOV lanes. By simply converting existing and programmed HOV lanes into a HOT Network, these lanes would generate net revenues of more than \$2 billion over a 30-year period, an amount sufficient to fund most of the estimated \$3.5 billion cost of adding HOV/HOT lanes to complete the regional network, including direct HOV/HOT connectors. If the Bay Area had to rely on traditional financing sources, it would take two decades or longer to complete the HOV lane system.

The HOT Lane Network Feasibility Study provides a regional framework to incorporate four HOT lane demonstration projects authorized by state law in Alameda and Santa Clara counties. Local elected officials have been key champions in securing legislative authority and moving these projects forward. Project design and environmental review already are underway, and the HOT lanes are expected to open for use in 2009 and 2010. These projects, along with associated transit and transportation demand initiatives, are the foundation of the HOT lanes element of the Urban Partnership proposal. Specifically, the Alameda County Congestion Management Agency (ACCMA) will assess new mobile enforcement technologies and new algorithms to promote more effective dynamic pricing applications. The Santa Clara Valley Transportation Authority (VTA) will convert existing HOV lanes and direct HOV connectors to HOT lanes on U.S. 101 and State Routes 85 and 237. Enhancements to transit and transportation demand management support both initiatives.

Tri-Valley/Sunol Managed Lanes

The ACCMA is developing HOT lanes in the I-580 and I-680 corridors, both of which serve inter-regional as well as intra-regional trips. I-580 is a key freight corridor and has the dubious distinction of having two of the 10 most congested locations in the region. The I-580 freeway operates at level-of-service F for a period of four-and-a-half hours daily with 12,000 vehicle hours of daily delay. The I-680 freeway currently operates at level of service D in the morning peak period.

The I-680 Sunol project will convert an existing southbound HOV lane into a HOT lane; revenues from the HOT lane will help fund construction of a northbound HOV lane plus corridor express bus service and other ridesharing options. Initial studies on I-680 were funded through the Value Pricing Program and the project is currently at 65 percent design. The ACCMA received a federal grant to evaluate ways to increase access to HOT lanes for low-income travelers in the I-680 and I-580 corridors and is now undertaking a revenue and operational analysis of a standard HOT lane in the I-580 corridor. The I-580 HOT lane is being developed in conjunction with construction of a new eastbound HOV lane expected to open in 2010.

Prices on both the I-580 and I-680 HOT lanes will be set dynamically to maintain level of service C. Carpools with two or more persons will be able to use the I-680 HOT lanes free of charge. Current forecasts are that the I-680 HOT lane will carry an average of 400 tolled and 1,200 free vehicles per hour in the morning peak in 2015 and reduce delay by 40 percent. Carpool volumes in the I-580 corridor may be high enough to require a tolling policy that allows free passage only for carpools of three or more persons. The current I-580 HOT lane study is examining this further. Preliminary estimates suggest the HOT lane will serve 500 tolled vehicles in the peak hour, if two-person carpools are not tolled, and reduce delay on I-580 by 35 percent.

a. I-680 HOT Lane Enforcement Demonstration

The Tri-Valley/ Sunol Managed Lanes project will support the HOT lane pricing system by developing and testing a mobile enforcement system on the I-680 HOT Lane when it opens in 2010. Only one HOT lane project in the U.S. employs mobile readers and its technology is different from that required under California Title 21, and thus cannot be used in any California HOT lanes. With violation rates on some HOT lanes as high as 15 percent during some periods, advances in enforcement procedures and technologies have important potential impacts on traffic and congestion. When the HOT lane is near full use, even a small number of violators can influence levels of service and force dynamic pricing higher than is justified by volumes of legitimate users.

b. I-680 and I-580 All Lane Pricing Algorithm

This project will develop a dynamic pricing algorithm that takes into account traffic in both mixed-flow lanes and HOT lanes, an innovation not currently employed on any existing HOT lanes. The proposed algorithm will be in place when the HOT lanes open in 2010. It will insure congested mixed-flow traffic is attracted to the HOT lanes when capacity allows, thereby maximizing throughput in the corridor overall. Lessons learned will apply to future HOT lane networks both at the regional and national level.

c. Bus Rapid Transit (BRT) and Transportation Demand Management

The Bay Area's Urban Partnership proposal includes two complementary projects in the I-580 and I-680 corridors to help reduce corridor congestion and provide benefits to those unwilling or unable to pay the HOT lane toll:

- **I-580 Corridor Bus Rapid Transit** – This project includes capital improvements to upgrade service on an existing bus route operated by the Livermore Amador Valley Transit Authority. The Near-Term project will reduce peak period headways to 10 minutes from the current 15 minutes, with the bus rapid transit line serving key destinations such as the Dublin/Pleasanton BART station, Hacienda Business Park and the Lawrence Livermore and Sandia National Laboratories. A Supplemental project would expand the service area. HOT lane revenues could be used to operate this service.
- **Hacienda Business Park 4Ts Program** – Coordinated with the enhanced bus service detailed above, this project would employ flexible work hours, expand telecommuting, enhance discounted transit passes, and expand transit service to later and earlier hours.

Proposed bus service enhancements in the I-580 corridor will result in a 69% ridership increase, 49,000 additional riders per month. Planned incentives for carpooling combined with preferential parking policies in place (5 percent of spaces) and new energy conservation planning are expected to reduce peak solo driving by at least 5 percent to 10 percent based on program evaluations to date.

Silicon Valley Comprehensive Mobility Initiative

This project encompasses several freeways in Santa Clara and San Mateo Counties, including U.S. 101 and State Routes 85 and 237. Silicon Valley has long been the Bay Area's economic engine and technology center, providing nearly 900,000 jobs, or almost 30 percent of the region's total. Santa Clara County population and employment are forecast to grow by almost 30 percent each in the next 25 years, further stretching already crowded roads. In 2006, more than 40 percent Santa Clara County freeways, including some 30 to 40 percent of U.S. 101 and State Routes 85 and 237, operated at level of service F during the morning or evening commute period.

Most of the Bay Area's existing HOV lane miles are in the Silicon Valley. Following its 2005 completion of a Santa Clara County HOT lane feasibility study and equity analysis, VTA plans a phased HOT lane approach starting with the State Route 237 corridor and a State Route 85/U.S. 101 mini-network that makes use of existing direct HOV connectors linking those freeways. Both projects would convert an existing HOV lane to a HOT lane in each direction. Tolls would be set dynamically to maintain level of service C, and carpools with two or more persons would travel free of charge. A complementary set of traffic management, transit and travel demand management enhancements is identified for funding assistance. Work will begin this year under a previously awarded Value Pricing Program grant to study ways to link roadway and transit pricing.

Under the Comprehensive Mobility Initiative, the HOT lanes will be supported by area-wide ramp metering improvements and transit and transportation demand management elements. A unique aspect is the potential partnership with a private consortium to make use of an area-wide communications currently under development. This network would connect field devices for tolling, transit and traffic management to the Caltrans Traffic Management Center, 511 Traveler Information Center, and Bay Area Toll Authority.

VTA earlier this year began engineering and operational analysis of HOT lanes on State Route 85 and U.S. 101. These studies will refine estimates of congestion relief. Preliminary studies suggest HOT lanes on U.S. 101 would carry an average of 970 tolled vehicles and about 500 free vehicles an hour in the peak direction during the morning peak. HOT lanes on State Route 85 would carry 400 tolled and 900 free vehicles, and those on State Route 237 would carry 800 tolled and 560 free vehicles an hour in the peak direction during the morning peak.

a. State Route 237 Cordon Pricing

This project would purchase tolling equipment and implement a pricing strategy to allow single occupancy vehicles to use the direct carpool lane-to-carpool lane connector to bypass a major bottleneck at the State Route 237/I-880 interchange for a fee. Travelers tied-up in the bottleneck take 12 to 18 minutes to traverse what is normally an eight-minute trip. The project, which will open in 2009, may include a HOT lane on the rest of the existing State Route 237 carpool lane (about six miles). Due to right-of-way constraints, VTA will investigate a pricing approach to allow for continuous access between the priced lane and the general traffic lanes. The Vehicle Infrastructure Integration (VII) Testbed Expansion (see under Regional Technology) likely will be deployed in this corridor to test advanced tolling technologies along side a FasTrak®-based system.

b. State Route 85/U.S. 101 Managed Lanes

Funds requested under the Urban Partnership proposal will purchase toll collection equipment for this project, set to open in 2010. Direct carpool lane-to-carpool lane connectors have been constructed at the two interchange locations, which are about 22 miles apart along the U.S. 101 alignment, forming an eye-shaped ring between Mountain View and San Jose. Implementation of HOT operations along the two intersecting freeway corridors will provide a unique testbed for understanding how pricing strategies can optimize travel in multiple corridors.

c. Area-Wide Ramp Metering Enhancements

To complement the HOT lanes and further improve traffic flow in the HOT lane corridors, VTA proposes to upgrade existing ramp metering systems and communications to enable an area-wide approach based on real-time conditions on the freeways and in coordination with local arterials. The project will establish a central corridor ramp metering algorithm and will send real-time metering rates to each location.

d. Transit and Transportation Demand Management

By expanding transit service, speeding travel times and providing real-time schedule information, transit and transportation demand management improvements will make transit a more convenient and attractive option for travelers in the Silicon Valley HOT lane corridors.

- Caltrain Real-Time Passenger Information – Caltrain and Sam Trans already have secured funding to equip trains and buses and provide accurate arrival information at nine stations in the U.S. 101 corridor. Caltrain carries some 27,000 daily transit trips in the U.S. 101 corridor to and

from Santa Clara County. The real-time arrival/departure information will facilitate bus-train transfers between Sam Trans and Caltrain and also will be provided to the 511 system. Funds requested through the Urban Partnership proposal will expand the scope of the project by adding four additional stations by 2009.

- U.S. 101 Commuter Travel Time Information System – This project will deploy changeable message and way-finding signs along the U.S. 101 corridor to display freeway and Caltrain travel times and indicate the availability of parking at Caltrain stations. The initial phase will open later this year at two locations. Under the Urban Partnership program, the project would be expanded to include two more locations by 2009. It is expected to boost transit boardings at each station by 5 percent.
- VTA Transit Signal Priority (Line 522) – This project will upgrade the existing loop-based bus signal priority system with a GPS-based system along El Camino Real, which runs parallel to the U.S. 101 HOT lane. Open in 2009, this will improve transit travel times and reliability by providing for more advanced detection of buses.
- First Mile and Last Mile Transit Access – VTA will work with car sharing companies and area business groups to make car sharing a viable alternative for the first mile and last mile commute. Parking management and information systems will help transit agencies provide parking information to potential transit riders. The Last Mile Employee Van Pool program will fill the gap for the commute between transit and the workplace.

3. *Parking Pricing and Management for Local Congestion Relief*

The Bay Area's Urban Partnership proposal includes a threefold strategy to better manage parking in downtown areas through pricing policies and smart technologies: institute variable parking pricing in San Francisco along with smart technology and way-finding signs; institute a similar program in Berkeley; and develop regional electronic parking payment capabilities that support variable pricing.

The rewards for successfully implementing these parking initiatives will include not only better management of on- and off-street parking to provide access to businesses, but also reductions to localized congestion related to the search for parking. This will, in turn, decrease associated vehicle emissions and improve bus operations.

Downtown Berkeley Variable Parking Pricing (ValuePark Partnership)

The City of Berkeley proposes to manage parking in its downtown area through a suite of variable parking pricing and transportation demand management strategies. These include pricing 1,275 on-street parking spaces and 2,249 off-street parking spaces, and installing a dynamic parking guidance system that uses parking sensors and changeable way-finding message signs to alert and direct motorists to available spaces. On-street parking prices will be set to correspond to current off-street prices, maintain an 85 percent utilization rate, and indexed to the price of transit access to the area. Berkeley's three-year planning effort has built strong local support among merchants, elected officials and the community, and the project is ready to go into effect immediately.

San Francisco Parking Pricing and Management

See project description under number 1. San Francisco Value Pricing, above.

Regional Parking Payment and Dynamic Pricing

MTC and the Bay Area Toll Authority (BATA) propose adding parking payment functionality to both the TransLink[®] transit fare payment system⁷ and the FasTrak[®] electronic toll collection system for use at parking meters and garages. These applications will be developed by 2009 in conjunction with the City and County of San Francisco and can later be easily expanded to Berkeley and other cities in the region.

⁷ TransLink[®] is the Bay Area's regional transit fare payment system, which will enable Bay Area transit riders to use a single reloadable smart card to board any public transit system in the nine-county San Francisco Bay Area.

San Francisco parking meters will already have the capability to read smart cards, so the project will fund (1) development of a software interface that allows the card readers to deduct value from a TransLink® card or FasTrak® toll tag; and (2) updates to the TransLink® and FasTrak® systems' "back end" to enable processing of parking meter transactions. At parking garages, TransLink® and FasTrak® functionality will be added to existing payment machines and/or readers will be installed.

The San Francisco Municipal Transportation Agency will establish and manage the variable pricing, with rates varying based on time of day, congestion on nearby roadways, and/or availability. MTC and BATA, which manage the TransLink® and FasTrak® systems, will support the expanded functionality and oversee an evaluation of the different approaches to parking payment. Though the congestion benefits of this regional parking strategy have not yet been quantified, there number of potential customers is huge. FasTrak® already has more than 600,000 accounts and usage is projected to skyrocket over the next five years. TransLink® is expected to eventually serve over 200,000 transit riders each day and some 1 million TransLink® cards are projected to be in circulation.

4. *Multi-Modal Operations for Congestion Management*

Because the timeframe of the Urban Partnership Program is too short to implement HOT lanes or other pricing strategies in some freeway corridors, the Bay Area proposal includes multi-modal operations and congestion management programs in three heavily congested travel corridors whose incorporation into the regional HOT lanes network remains several years off. These corridors connect population and job centers in San Francisco, the Silicon Valley and the East Bay, and serve the region's gateways for business, tourism and trade at the San Francisco International Airport, Oakland International Airport and the Port of Oakland.

Interstate 880 Integrated Corridor Management Pioneer Site

The I-880 corridor in Alameda County is one of eight "Pioneer Sites" selected by USDOT under the federally sponsored Integrated Corridor Management (ICM) initiative. MTC and Caltrans — in partnership with the Alameda County Congestion Management Agency, AC Transit and BART — are collaborating to demonstrate that independent, network-based transportation management systems and their cross-network linkages can be operated in a more coordinated and balanced manner, thereby reducing congestion and increasing corridor throughput. The 38-mile I-880 corridor is a long, densely populated urban string connecting the Silicon Valley with the Port of Oakland, Oakland International Airport and major population centers. The I-880 freeway is a major trade route, with trucks comprising between 4 percent and 11 percent of the average annual daily traffic. The I-880 corridor is particularly well suited for ICM because it is truly multi-modal, featuring not only a robust freeway network highly instrumented with transportation management and real-time data collection systems but also major arterials which carry high volumes of local traffic; and a transit network which includes the BART rail system and multiple bus transit lines.

For the federally sponsored ICM initiative, MTC and its partners already have developed a Concept of Operations that identifies specific strategies to operationally test a range of technologies related to traffic monitoring and communications: (1) a multi-modal, pre-trip and en-route real-time information system (including information for trucks serving the Port of Oakland); (2) collaboration for operations (e.g., coordinating ramp meters and traffic signals, emergency response); and (3) collaboration for event planning. These strategies will be evaluated through modeling and simulation analyses. The most cost-effective strategies would be demonstrated starting in 2009 with the grant funds requested as part of the Urban Partnership proposal.

On a typical weekday, I-880 experiences 10,000 hours of vehicle delay. Average annual daily traffic ranges from 120,000 to 275,000 vehicles. At this early stage, the I-880 corridor team estimated performance improvement targets for the I-880 multi-modal system. For instance, the project is expected to reduced freeway congestion by at least 10 percent and improve travel time reliability by the same amount.

AC Transit Telegraph/International Bus Rapid Transit (BRT)

This project will upgrade existing bus service in the I-880 corridor by implementing BRT along a 17-mile alignment. Existing AC Transit bus service carries 24,000 riders a day through the corridor, which includes downtown Berkeley, the University of California, downtown Oakland, downtown San Leandro and the Bayfair shopping center. The BRT project will include dedicated lanes; transit signal priority and signal coordination; stations spaced at quarter- to half-mile intervals and equipped with shelters, boarding platforms, real-time arrival information and pre-paid ticketing; and low-floor, multi-door, and low-emission BRT vehicles. Service will operate at 3.5- to five-minute headways during peak periods.

Based on evaluation criteria including cost-effectiveness, system connectivity and supportive land uses, MTC and the region's transit operators have identified the Telegraph/International BRT project as the region's top candidate for the Small Starts program. The project will increase throughput by doubling corridor transit ridership and reducing auto use by 5,000 to 9,000 daily trips. Travel times for transit passengers will be reduced by 35 percent. The draft environmental impact study for the Telegraph/International BRT initiative will be released in May 2007. AC Transit expects to enter the Small Starts process seeking a total of \$75 million in federal funding in September 2007. They will work with FTA to enter into project development and a multi-year project construction grant agreement, as appropriate. The project is expected to open for use in 2011.

I-80 Corridor Test and Demonstration of Full Active Traffic Management System in an ICM Environment

The I-80 project will create an integrated freeway and arterial management system in a 20-mile corridor running from the Carquinez Bridge in Crocket to the Bay Bridge toll plaza in Oakland. This has long been the most congested corridor in the Bay Area, with current daily traffic volume averaging about 300,000 vehicles. Trucks account for 2 to 5 percent of the traffic in the peak hour, and the corridor currently averages nearly 20,000 vehicle hours of delay per day. I-80 is a critical regional commute route serving San Francisco as well as job centers in the East Bay. The route is a major conduit for freight, providing access to the Port of Oakland and Port of Richmond. The corridor is served by regional rail (BART and Amtrak), and frequent express and local bus service.

The project goal is to create a uniform, stable balanced flow through the corridor, including the freeway, ramps and arterial network. This project will augment existing Caltrans Traffic Operations System (TOS) field elements such as closed circuit televisions, changeable message signs, highway advisory radio and ramp metering. The project will develop an integrated information exchange system between Caltrans, local jurisdictions and the region's 511 traveler information system to share freeway congestion, ramp metering and local arterial information. This project, which will open in 2010, is expected to increase average speeds by 15 percent and decrease incidents by 10 percent. A separate state-funded project will provide system management equipment for the corridors arterial and transit systems.

U.S. 101 and Interstate 280 Integrated Transportation Incident Management

This project, located in San Mateo County, serves a 26-mile corridor connecting San Francisco to the Silicon Valley. The corridor includes two parallel freeways (U.S. 101 and I-280) plus a parallel state route (El Camino Real, State Route 82) that functions as an urban arterial "Main Street" through major cities. Combined, U.S. 101, I-280 and El Camino Real serve nearly 500,000 vehicles per day. San Francisco International Airport is located along this corridor, and the corridor is served by commuter rail (Caltrain), BART, and local and express buses.

The project will integrate freeway and arterial operations, share information between Caltrans and local agencies operating the arterial network, establish coordinated activities between traffic management and emergency response, and enhance transit service. Project components may include a subregional transportation management center, closed-circuit television cameras, adaptive ramp metering, route guidance systems, traveler information, emergency vehicle pre-emption, transit priority and smart parking facilities. The project, which will open in 2009, is expected to increase average freeway and arterial

speed by 15 percent and decrease incidents by 10 percent. Transit travel times are expected to decrease by 25 percent.

5. *Regional Technology and Program Evaluation*

The Bay Area's Urban Partnership proposal includes several initiatives that will capitalize on advanced technology at the regional level to support and enhance the larger suite of congestion relief projects. In each case, technology will be designed and developed to spur the efficient and timely expansion of programs that prove successful.

511 Enhancements for More Complete Traveler Information

The Bay Area's 511 traveler information system is the most comprehensive and well-used system in the country. The system relies on a sophisticated data-gathering network to provide real-time traffic conditions and transit information via the phone and a companion Web site. This proposal calls for a series of enhancements to provide travelers with the most complete information possible for making smart for travel decisions in the new, priced environment.

a. Congestion Pricing Information

MTC's 511 system currently provides real-time congestion information and up-to-the-minute driving times for approximately 95% of the Bay Area's freeway miles. This project proposes to enhance the 511 data collection system, enabling it to calculate separate travel times and congestion information for HOT lanes (or any separately managed lanes) and for general-purpose lanes. By providing a dissemination tool for pricing-related information, this would establish a valuable enabling technology for the larger congestion-pricing plan described above. Historic information on travel times and toll rates will be available via phone or Web so travelers may plan their travel modes, routes and departure times in advance. Information also will be made available through roadside changeable message signs, allowing travelers to make choices en-route. The project will open with the first variable tolled facilities (Doyle Drive and State Route 237) in 2009.

b. Parking Information

This project would expand the 511 phone and Web services to provide information about parking space availability and pricing, and allow customers to reserve spaces in municipal parking lots. Providing parking price information via phone and Web would allow drivers to size up their willingness to pay ahead of time, and make a personal, price-conscious decision about the best place to park or whether it would be more cost-effective to take an alternative to driving. The project will open in 2009 following implementation of the Berkeley and San Francisco parking initiatives.

c. Real-Time Transit Information

Real-time transit predictions provide valuable information to travelers, especially those looking to change travel modes. This project seeks funding to design and implement the central component of a real-time transit application for use on the 511 phone system. The system will allow drivers looking for transit alternatives to discern if enough time is available to catch their bus, train or ferry. Bus fleets in the priced corridors will be fully equipped by fall 2007 and could be integrated into the real-time transit information system as soon as the central components are developed in 2008. These fleets include San Francisco Muni, and VTA and LAVTA in the Silicon Valley and Tri-Valley/Sunol elements of the regional HOT lanes network. The Caltrain commuter rail system, which also serves the Silicon Valley element of the HOT lanes network, is similarly ready for inclusion.

d. Multi-modal trip planner

This project proposes to integrate the 511 system's transit and traffic information into a more comprehensive tool for comparison of multi-modal trip planning alternatives on both the phone and the Web. The current system includes the 511 TakeTransit Trip PlannerSM, which enables Web users to plan trips on transit systems based on a start and end point, transit schedules, and user choices of transit options. The new multi-modal trip planner would also provide cost comparison information between transit and driving trip options, and enable alternative trip options to be evaluated based on these comparisons. Alternative route proposals would be suggested when real-time or historical information

indicates that a diversion is recommended based on congestion, travel time, or cost. This will enable 511 users to make more informed travel choices based on a wider understanding of conditions that may affect trips they are planning. With development of the Real-Time Transit Information system above, this application would be available in priced corridors as early as 2010.

Vehicle Infrastructure Integration (VII) Testbed Expansion

VII is widely considered to be the enabling technology of the future for both road pricing and traffic management. A California VII testbed — an official part of U.S. DOT's National VII testing program — will open in 2008 along the U.S. 101 corridor in San Mateo and Santa Clara counties. This proposal will expand the testbed to test a VII tolling application alongside the FasTrak® technology, on one or more of the proposed pricing corridors (likely State Route 237) in 2009.

This expansion will enable Bay Area transportation agencies to gauge the feasibility and value of VII in a dynamic pricing environment. While this would have no immediate impact on congestion, it will have a huge influence on ITS research as it relates to VII and its suitability for supporting congestion pricing. Among the potential advantages that VII may have over traditional ETC technology are the ability to detect which lane and direction vehicles are traveling from a single installation of roadside equipment; the ability to charge users based on exact mileage of managed lane use without requiring physical entry and exit points or new equipment installed over roadways; and the ability to calculate travel times and speeds in both managed lanes and general-purpose lanes with no additional sensors, thus allowing HOT lane or managed lane travel times/speeds to be used to determine dynamic pricing.

Regional Evaluation

Evaluation is a central component of the Urban Partnership Program. To better understand which programs work most effectively, and how the Bay Area's experience will translate to other regions around the country, this proposal similarly emphasizes evaluation — including an assessment of both “system impacts,” such as before-after measurement of congestion levels and other key parameters, and of “knowledge transfer,” capturing lessons learned for USDOT and agencies around the country.

MTC will leverage the data gathering and evaluation resources included in each project to lead an overall evaluation of how the Urban Partnership strategies work together to tame regional congestion and improve system reliability. Key elements of the regional evaluation effort include the following:

- Quantification of congestion reduction and improvements in travel time reliability (before-after) on the primary study routes: Doyle Drive and other commute corridors in San Francisco, U.S. - 101 in San Mateo and Santa Clara Counties, State Routes 237 and 85 in Santa Clara County, and I-880, I-580 and I-680 in Alameda County. A priority will be placed on “a few good measures”- simple statistics meaningful to the public and decision makers (e.g., travel times).
- Quantification of the before-after impacts of the “push” and “pull” strategies that support congestion pricing. That is, “tracing” person trips displaced by congestion pricing.
- Subject to sufficient resources, research on other policy-related outcomes. Examples include: 1) customer perception and preferences, 2) impacts on transit operations, alternative routes, and goods movement, 3) economic impacts on retail business in the area's served by Doyle Drive and 4) social equity issues as relates to low-income persons.
- Use of quantitative data sources (such as bus ridership, congestion statistics, 511 phone and web usage, FasTrak® toll tag and TransLink® fare card usage) and qualitative data sources like surveys and interviews.

Participating Parties and Staff Contacts

Participating Parties	Urban Partnership Proposal Elements				
	San Francisco Value Pricing	Regional HOT Lanes Network	Regional Parking Pricing and Management	Multi-Modal Operations for Congestion Management	Regional Technology
Caltrans	ü	ü		ü	ü
California Highway Patrol		ü		ü	
Metropolitan Transportation Commission (MTC)/ Bay Area Toll Authority (BATA)	ü	ü	ü	ü	ü
County Congestion Management Agencies and Transportation Authorities Alameda County Congestion Management Agency (ACCMA) San Mateo City/County Association of Governments (C/CAG) San Mateo County Transportation Authority Santa Clara Valley Transportation Authority (VTA) San Francisco County Transportation Authority	ü	ü		ü	ü
Transit Operators AC Transit Bay Area Rapid Transit District (BART) Caltrain/SamTrans Golden Gate Bridge Highway and Transit District Livermore Amador Valley Transit Authority (LAVTA) Santa Clara Valley Transportation Authority (VTA) TransLink® Consortium/other operators	ü	ü	ü	ü	ü
City and County of San Francisco, including Municipal Transportation Authority (MTA)	ü				ü
City of Berkeley			ü		ü
Other Local Governments and Service Providers (e.g., public works, police, and fire departments)		ü	ü	ü	
Public and Private Institutions Downtown Berkeley Association Hacienda Business Park Association VII Original Equipment Manufacturers (auto manufacturers) Partners for Advanced Transit and Highways Port of Oakland and Oakland International Airport Private parking garages San Francisco International Airport Sunol Smart Carpool Lane Joint Powers Authority University of California Berkeley University of California Transportation Center	ü	ü	ü	ü	ü

Staff Contacts

Overall Proposal

Doug Kimsey, Director of Planning
Metropolitan Transportation Commission
101 8th Street, Oakland, CA 94607
ph.: 510.817.5790
fax: 510.817.5848
e-mail: dkimsey@mtc.ca.gov

San Francisco Value Pricing Element

Tilly Chang, Deputy Director for Planning
San Francisco Transportation Authority
100 Van Ness Avenue, 26th Floor
San Francisco, CA 94102
ph.: 415.522.4832
fax: 415.522.4829
e-mail: tilly.chang@sfcta.org

San Francisco Bay Area Accelerate
Implementation Schedule and Funding Plan

						Near-Term							Supplemental						
						Federal Funding Request (millions)					Other Funds (millions)		Federal Funding Request (millions)					Other Funds (millions)	
Theme	Project	Lead Agency	Constr Underway	Opening Year	Total Cost (mill)	VPP	ITS	Bus	Other Source	TOTAL	Amount	Sources	VPP	ITS	Bus	Other Source	TOTAL	Amount	Sources
1 San Francisco Value Pricing																			
Doyle Drive Value Pricing Program	Dolye Drive congestion tolling system	SFCTA	2008	2009	\$37.0	\$2.8	\$10.8			\$13.6	\$3.4	Local		\$16.0			\$16.0	\$4.0	Local
	Doyle Drive replacement	SFCTA	2009	2010	\$810.0											\$56.0 PLH/TCSP	\$56.0	\$754.0	State, Local, toll
	Transit Priority Facilities and Measures																		
	Van Ness and Geary BRT - early action projects	MTA	2008	2009	\$16.0		**	\$12.8		\$12.8	\$3.2	Local							
	BRT vehicles	MTA	2008	2009	\$120.0		**	\$36.0		\$36.0	\$9.0	Local		**	\$60.0		\$60.0	\$15.0	Local
	Transit preferential streets corridors	MTA	2009	2009	\$104.0		**	\$67.2		\$67.2	\$16.8	Local		**	\$16.0		\$16.0	\$4.0	Local
	Facilities and equipment	MTA	2009	2009	\$5.0		**	\$4.0		\$4.0	\$1.0	Local							
	SFGo arterial traffic management and transit signal priority	MTA	2008	2009	\$72.5		\$20.0	\$10.0		\$30.0	\$7.5	Local		\$20.0	\$8.0		\$28.0	\$7.0	Local
	San Francisco Smart Parking (pricing and management)	MTA/SFCTA	2008	2009	\$25.9	\$5.7	\$10.8		\$2.8 TCSP	\$19.3	\$6.3	Local		\$0.2			\$0.2	\$0.1	Local
	TDM/telecommuting																		
	Integrated mobility account (IV a)	MTA	2009	2009	\$14.0									\$5.6		\$5.6 TCSP	\$11.2	\$2.8	Local
	Telecommuting and TDM (IV b, c)	SFDOE	2008	2009	\$6.0	\$1.8			\$0.6 TCSP	\$2.4	\$0.6	Local	\$1.8			\$0.6 TCSP	\$2.4	\$0.6	Local
2 Regional HOT Lanes Network																			
Tri-Valley/ Sunol Managed Lanes	HOT lane pricing & enforcement technologies																		
	I-680 & I-580 HOT lanes - all lane monitoring pricing algorithm	ACCMA	2008	2010	\$2.5	\$2.0				\$2.0	\$0.5	Local, state							
	I-680 HOT Lane - test mobile enforcement readers	ACCMA	2008	2010	\$1.2	\$1.0				\$1.0	\$0.2								
	Expand employer TDM (Hacienda Business Park)	LAVTA	2009	2009	\$0.8								\$0.6				\$0.6	\$0.2	
	I-580 Corridor Bus Rapid Transit	LAVTA	2008	2009	\$32.0			\$14.0		\$14.0	\$8.0	Local, federal			\$8.0		\$8.0	\$2.0	Local
Silicon Valley Comprehensive Mobility Initiative	HOT lane tolling infrastructure																		
	SR 237 corridor pricing (with I-880/SR 237 connector)	VTA	2008	2009	\$9.4	\$2.6	\$4.9			\$7.5	\$1.9	Local							
	SR 85/US 101 managed lanes network	VTA	2009	2010	\$50.0								\$14.0	\$26.0			\$40.0	\$10.0	Local, state
	Enhanced transit information (US 101 corridor) - Subtotal																		
	US 101 Commuter travel time information system	Caltrain	2007	2009	\$3.5		\$1.5			\$1.5	\$2.0	Local							
	Caltrain real-time passenger information system	Caltrain	2008	2009	\$0.6		\$0.5			\$0.5	\$0.1								
	Area-wide ramp metering (I-880/237 HOT corridor & US 101/SR 85)	VTA	2009	2009	\$1.5		\$1.2			\$1.2	\$0.3	Local							
	VTA Transit Signal Priority (Line 522)	VTA	2008	2009	\$1.5		**	\$1.2		\$1.2	\$0.3	Local							
	Employer TDM: First and last mile transit access	VTA	2008	2008	\$1.5								\$1.2				\$1.2	\$0.3	Local
3 Regional Parking Pricing and Management																			
Core Area Parking	Berkeley ValuePark Partnership	Berkeley	2008	2008	\$3.8	\$1.5	**		\$1.5 TCSP	\$3.0	\$0.8	Local							
	San Francisco Smart Parking (pricing and management)	See above under San Francisco Value																	
	Regional electronic parking payment and dynamic pricing	MTC	2008	2009	\$2.5		\$2.0			\$2.0	\$0.5	Local							
4 Multi-Modal Operations For Congestion Management																			
Multi-Modal Operations For Congestion Management	I-880 Corridor Management																		
	I-880 Integrated Corridor Management Pioneer Site	MTC	2008	2009	\$10.5		\$4.0			\$4.0	\$1.0	Local		\$4.4			\$4.4	\$1.1	
	AC Transit Telegraph/International BRT (I-880)	AC Transit	2009	2011	\$250.0				\$75.0 Sm St	\$75.0	\$175.0	Federal, state, regional and local							
	I-80 Corridor Test and Demonstration of Full Active Traffic Management System	ACCMA	2009	2010	\$98.8									\$11.1			\$11.1	\$87.7	Local
	US 101/I-280 Integrated Transportation Incident Management	C/CAG	2009	2009	\$10.0									\$8.0			\$8.0	\$2.0	Local
5 Regional Technology and Urban Partnership Program Evaluation																			
Complete Traveler Information	511 Enhancements																		
	Congestion pricing information: price & travel time	MTC	2007	2009	\$1.5		\$1.2			\$1.2	\$0.3	Local							
	Parking information: availability, pricing, reservations	MTC	2008	2009	\$1.0		\$0.8			\$0.8	\$0.2	Local							
	Real-time transit information (deploy first in priced/managed corridors)	MTC	2008	2008	\$1.3		\$1.0			\$1.0	\$0.3	Local							
	Multi-modal trip planner (deploy first in priced/managed corridors)	MTC	2008	2010	\$2.0									\$1.6			\$1.6	\$0.4	Local
Technology Innovation	Test vehicle infrastructure intragration (VII) road tolling applications	MTC	2008	2009	\$1.5		\$1.2			\$1.2	\$0.3	Local							
Evaluation	Regional evaluation of Urban Partnership Program	MTC	2008	2009	\$0.5		\$0.4			\$0.4	\$0.1	Local							

** Duplicate application likely.

Near-Term: Federal Funding Request					
	VPP	ITS	Bus	Other	TOTAL
TOTAL	\$17.4	\$60.3	\$145.2	\$79.9	\$302.8

Other Funds
TOTAL
\$239.5

Supplementary: Federal Funding Request					
VPP	ITS	Bus	Other	TOTAL	
\$17.6	\$92.9	\$92.0	\$62.2	\$264.7	

Other Funds
TOTAL
\$891.2